# Hawaiian Electric Companies' Status of Smart Export and CGS+ Programs

Technical Conference

July 3, 2019

Hawaiian Electric
Maui Electric
Hawai'i Electric Light

# Agenda

- Overview of Programs
- Background
- Most Recent Status
- Smart Export System Performance
- Recommended Path Forward

# Interim Smart Export Program

| Credit Rates and Export Windows for Interim Smart Export Program for the HECO Companies | | | |
|---|---|---|---|
| 12 a.m. – 9 a.m. | | 9 a.m. – 4 p.m. | 4 p.m. – 12 a.m. |
| O'ahu | 14.97 ¢/kWh | No credit | 14.97 ¢/kWh |
| Hawai'i Island | 11.00 ¢/kWh | | 11.00 ¢/kWh |
| Maui | 14.41 ¢/kWh | | 14.41 ¢/kWh |
| Moloka'i | 16.64 ¢/kWh | | 16.64 ¢/kWh |
| Lāna'i | 20.79 ¢/kWh | | 20.79 ¢/kWh |
| The export credit rates will remain fixed for five (5) years. | | | |

| Program Capacity: | | |
|---|---|---|
| HECO: 25 MW | HELCO: 5 MW | MECO: 5 MW |
| Approximately 3,500-4,500 customers may enroll in the Smart Export program throughout the HECO service territories. | | |

# Interim Customer Grid Supply Plus Program

| Credit Rates for the CGS+ Program for the HECO Companies | |
|---|---|
| Island | CGS+ Credit Rate |
| Oahu | 10.08 ¢/kWh |
| Hawai'i Island | 10.55 ¢/kWh |
| Maui | 12.17 ¢/kWh |
| Moloka'i | 16.77 ¢/kWh |
| Lāna'i | 20.80 ¢/kWh |

The export credit rates will remain fixed for five (5) years.

| Program Capacity | | |
|---|---|---|
| HECO: 35 MW | HELCO: 7 MW | MECO: 7 MW |

Approximately 5,000-6,000 customers may enroll in the CGS+ program throughout the HECO service territories.

# Notice Requirements

- Ordering Paragraph No. 37 Commission directed the Companies to:

- "publicly announce and notify the Commission and Parties when 50%, 75% and 90% of their respective interim Smart Export program caps have been reached"

- The Commission ordered the same announcement and notification requirement with respect to the CGS Plus program administration

# How & When We Provide Notice

- In D&O 34924, Ordering Paragraph No. 35 states:
- "capacity shall be based on a kW measure of systems actually installed"
- The Commission also directed the Companies as follows:
- "The HECO Companies shall process and approve applications until the capacity associated with approved applications reaches the program cap. Thereafter, the HECO Companies shall continue to accept applications, but shall issue a notice to the applicant informing him or her that the application has been accepted, but approval is conditioned on available capacity space."

# How & When We Provide Notice

- Reporting levels of Conditionally Approved applications (conservative approach)
- Not executed (or completed) projects which are still well below the cap
- Conditional Approvals trigger notifications to public, Commission and Parties
  - When 50%, 75% and 90% of program caps reached
- The Companies propose to provide notice by the following methods:
  - Filing a letter in this proceeding to the Commission and Parties;
  - Publication in a newsletter that is provided to all active installers/contractors ;
  - Posting the information on the Companies' websites, independent of the newsletter ; and
  - As applicable, discussing the status of program caps during any regularly scheduled DER stakeholder meeting.
- A news release is prepped for distribution after this conference

# Notifications

- March 13, 2019 letter filed:
- "With regards to the Smart Export program, the Hawaiian Electric Companies are providing notice that Hawai'i Electric Light has surpassed the 50% threshold and is nearing the 75% threshold for conditionally approved applications."

- "As shown in the data for Hawai'i Electric Light, approximately 5 MW, or 73% of available capacity, exists under the CGS Plus program. Thus, Hawai'i Electric Light customers continue to have options even though the amount of conditionally approved Smart Export applications are approaching the program cap."

# Notifications

- June 20, 2019 letter filed:
- "With regards to the Smart Export program, the Hawaiian Electric Companies are providing notice that Hawai'i Electric Light is nearing the 90% threshold for conditionally approved applications."

- "As of the week of 06/11/19, Hawai'i Electric Light has 2.76 MW of applications that have been conditionally approved and 1.32 MW of installed systems. There are approximately 0.83 MW of remaining program capacity when subtracting the Submitted, Approved, and Executed capacity form the initial 5MW program capacity for Hawai'i Island."

# Capacity as of June 11, 2019

| Company | Program | Submitted (RC/ITR/SR) | Approved (PI/PV+PE) | Executed (EX) | Remaining |
|---|---|---|---|---|---|
| Hawaiian Electric | CGS Plus | 0.38 MW | 3.26 MW | 1.60 MW | 29.76 MW |
| | Smart Export | 0.10 MW | 3.51 MW | 2.26 MW | 19.13 MW |
| Maui Electric | CGS Plus | 0.07 MW | 0.57 MW | 0.00 MW | 6.36 MW |
| | Smart Export | 0.00 MW | 0.14 MW | 0.00 MW | 4.86 MW |
| Hawai'i Electric Light | CGS Plus | 0.28 MW | 1.45 MW | 1.16 MW | 4.11 MW |
| | Smart Export | 0.09 MW | 2.76 MW | 1.32 MW | 0.83 MW |

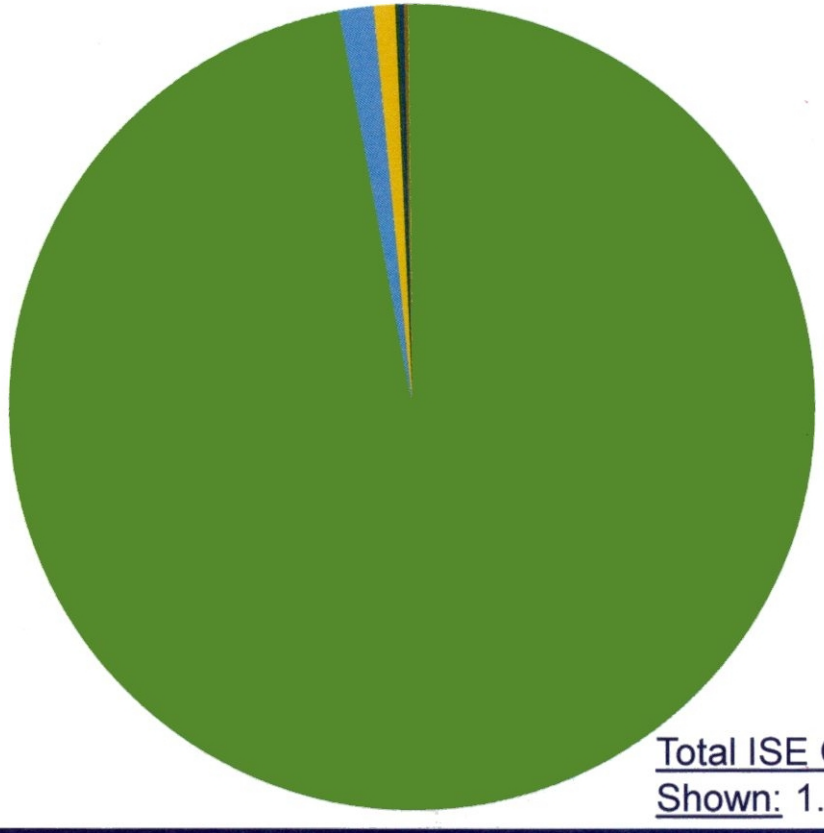
# Hawai`i Electric Light Capacity – July 1, 2019

| | Program | Submitted (RC/ITR/SR) | Approved (PI/PV+PE) | Executed (EX) | Remaining | Remaining Percentage |
|---|---|---|---|---|---|---|
| **Hawai'i Electric Light** | CGS Plus | 0.49 MW | 1.44 MW | 1.28 MW | 3.79 MW | 54% |
| | Smart Export | 0.38 MW | 2.77 MW | 1.36 MW | 0.48 MW | 9.7% |

Does not include applications submitted but rejected in completeness review

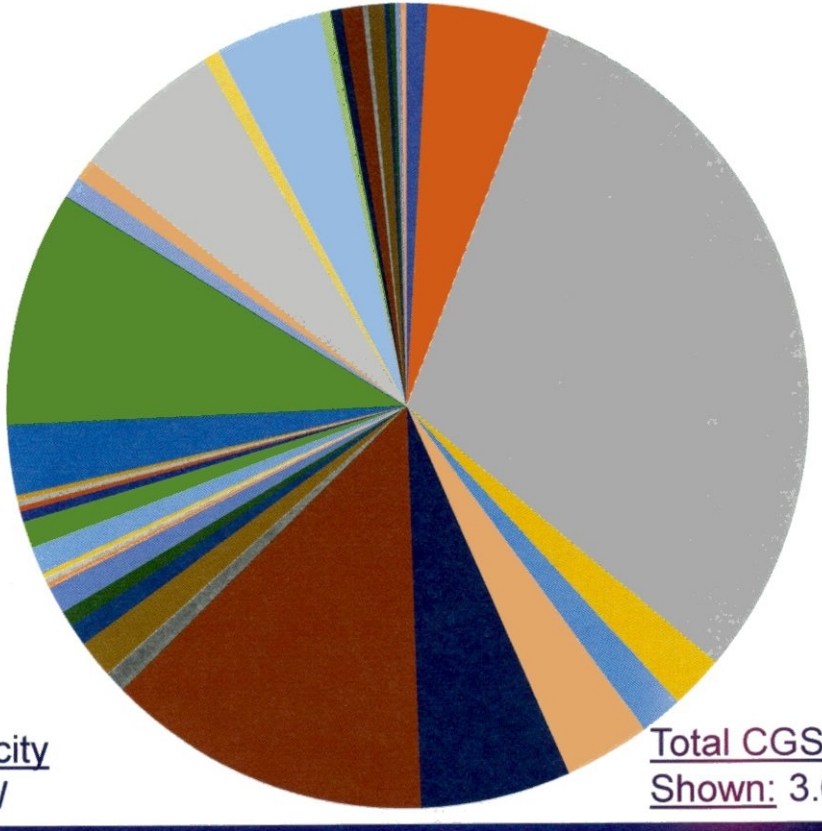
# Tri-Company Executed Projects By Contractor

## Interim Smart Export



Total ISE Capacity Shown: 1.2 MW

## Interim Customer Grid Supply Plus



Total CGS+ Capacity Shown: 3.6 MW

# How Smart Export Systems are Performing

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Maui Electric
Hawai'i Electric Light

# Smart Export Analysis Overview

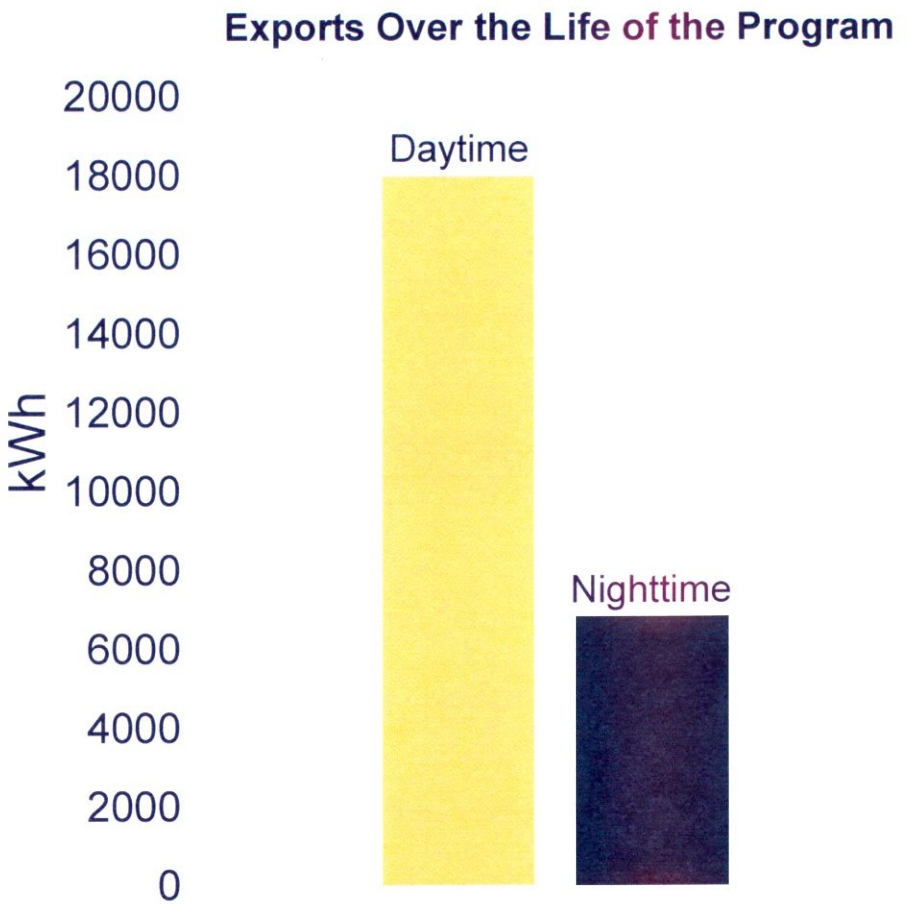
- Looked at 333 O'ahu Smart Export customers
  - Billing data: all customers
  - Smart meter (15-min) interval: ~206 customers
- 316 (95%) stated in application – non-export daytime
- 17 (5%) stated in application – export daytime
- All customers have some daytime export (matter of degree)

# Smart Export Analysis – Billing Data

- Bill data is monthly cumulative kWh exported for 2 time periods from load profile or smart meters
  - Daytime (9am to 4pm) – no credit for exports
  - Nighttime (4pm to 9am) – exports credited at $0.1497/kWh
- Approximately 6% of bills for customer's that indicated non-export show significant daytime exports
  - exports 10x CSS kWh threshold
- Approximately 20% of bills for customer's that indicated non-export show minor daytime exports
  - exports exceed CSS kWh threshold
- Remaining 74% are below CSS kWh export thresholds

# Smart Export Analysis – Billing Data

- Data on daytime exports
  - Total 17,972 kWh over the life of the program
- Data on nighttime exports
  - Total 6,813 kWh over the life of the program
- Majority of Smart Export customers are not optimally exporting during nighttime hours
- Customers were only compensated for 37% of their exports
- Customers would be better off in the Customer Grid Supply Plus program

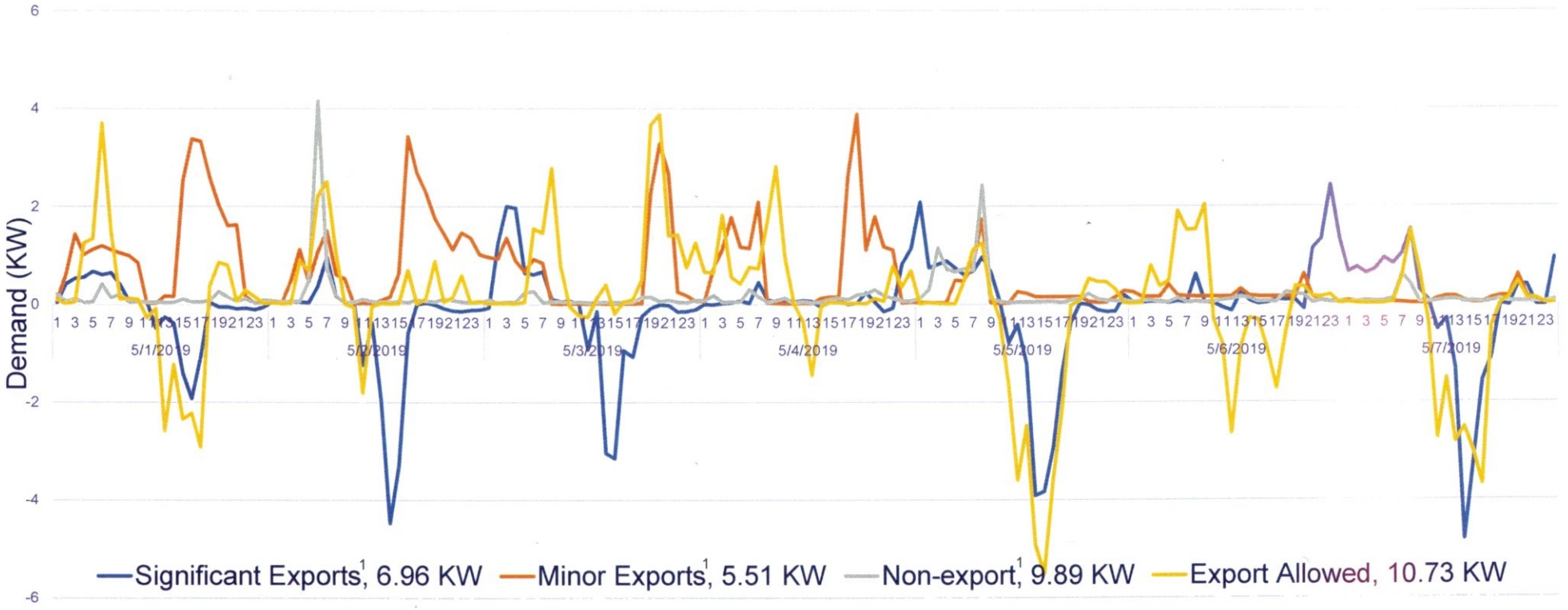


# Smart Export Analysis – Smart Meter Data

- 15-min interval data
  - Approximately 206 smart meters deployed on O`ahu for 333 customers
  - 15-min interval data for each customer results in ~3.4 million data sets over several months
  - Narrowed to analyze 21 customers
    - 10 significant exporters (exports 10x CSS kWh threshold)
    - 5 minor exporters (exports exceed CSS kWh threshold)
    - 5 non-exporters
    - 1 export allowed system
- Graph shows net demand (kW) which is Delivered (kW) less Received (kW) for various cases and system size for average for hourly intervals for one week period for 4 customers
  - Negative indicates exports exceed imports
- Most exports occur during daytime hours and less during nighttime hours

# Smart Export Example Customer Analysis – Smart Meter Data

**Net Hourly Demand Profiles for the Week of May 1, 2019 - May 7, 2019 – 4 customers**

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[1] Applications indicated these are non-daytime export systems

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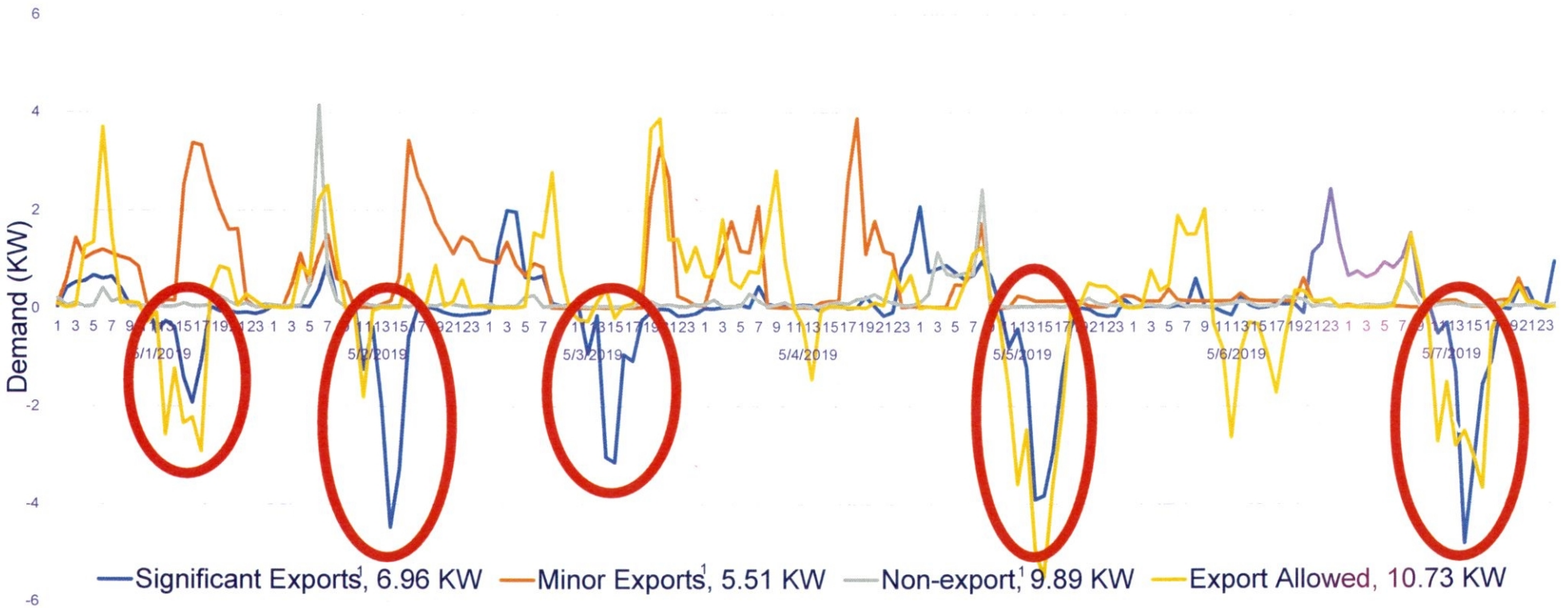


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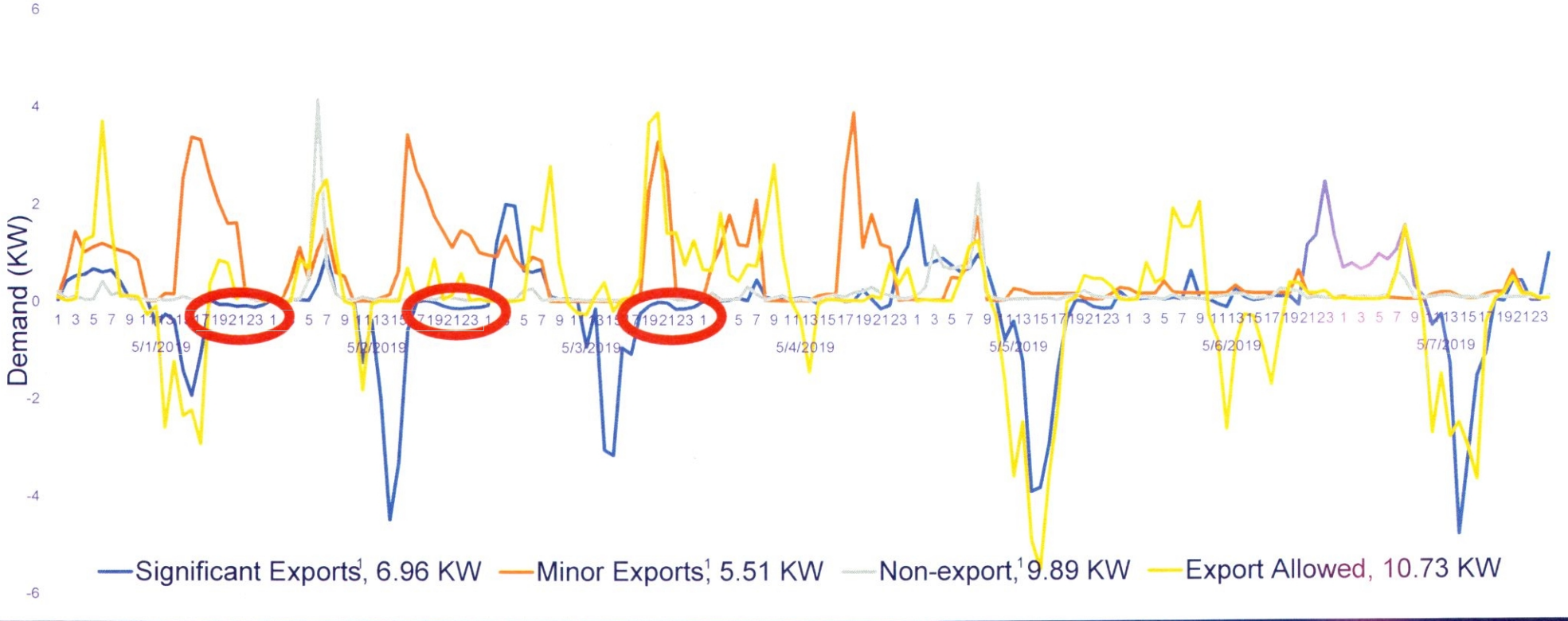


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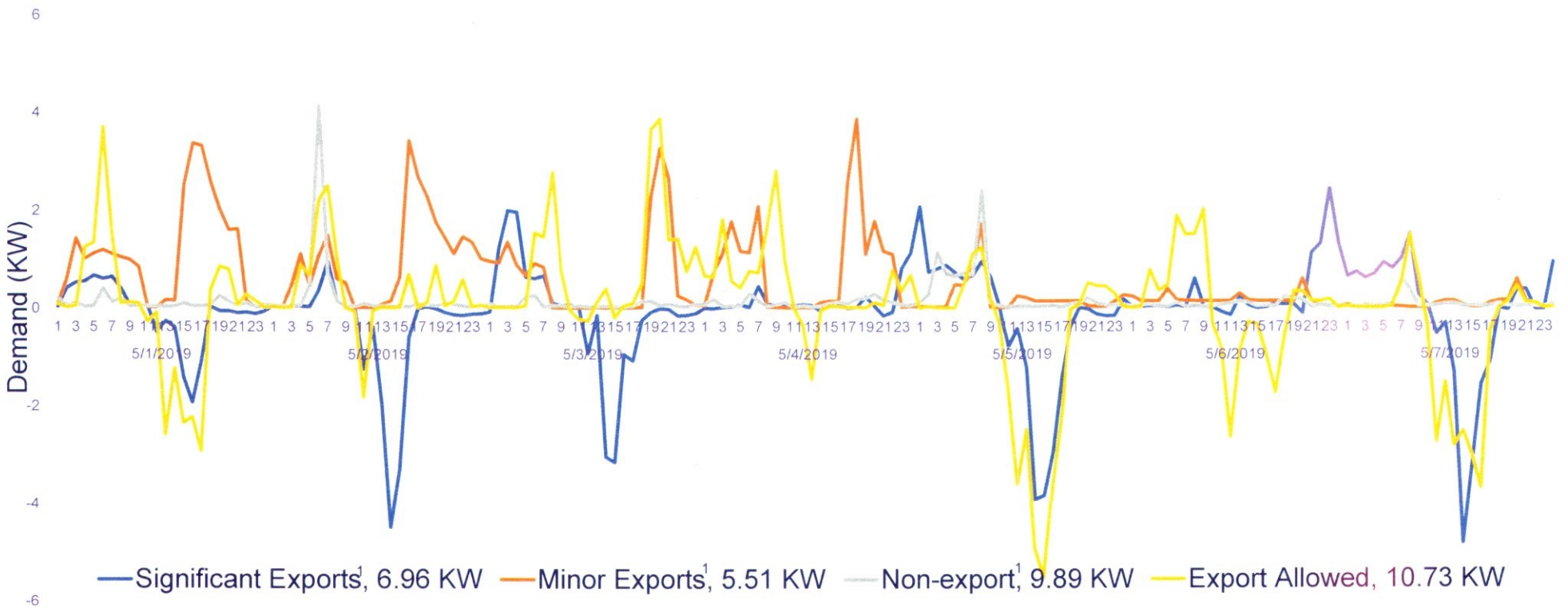


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# Recommended Path Forward

- Currently, the program is not working as originally designed. Was intended to avoid daytime exports and incentivize nighttime exports.
- Customers with daytime exports are losing compensation they would otherwise receive under CGS+ or by shifting their exports to nighttime.
- 95% of Smart Export systems are being given expedited review as non-daytime exporting systems; however, 26% have beyond negligible exports which may be resulting in momentary circuit issues.
- In general, new DER opportunities should be generated from other near-term initiatives, e.g., Advanced Rate Design Strategy, grid services RFPs, Integrated Grid Planning, CBRE Phase 2 and Non-Wires Alternatives.

# Recommended Path Forward

- Maintaining the cap will primarily impact one contractor; however, many programs are still available and will continue to support a sustainable DER market.
- Recommendations:
  1. Work with Smart Export contractor(s) to understand and address performance issues.
  2. Stick with programs that are available, CGS+, CSS, and NEM+, unless performance issues with Smart Export can be addressed.
  3. For transparency, begin reporting on Smart Export systems' performance, similar to CSS and NEM.

# Mahalo!

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